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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,336	09/23/2003	Manoharprasad K. Rao	202-1578	2335

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EXAMINER

ZANELLI, MICHAEL J

ART UNIT	PAPER NUMBER
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3661

DATE MAILED: 10/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/605,336

Applicant(s)

RAO ET AL.

Examiner

Michael J. Zanelli

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2003 and 12 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>10/3/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The application filed 9/23/03 has been examined. Claims 1-20 are pending.
2. The IDS filed 10/3/03 has been considered.
3. Claims 11, 12 and 17 are objected to because of the following informalities:
 - A. As per claims 11, 12 and 17, "or" should be --and-- since at least one of a group is selected from.
4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 5, 7, 11-13, 15-18 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Katoh (5,748,477).
 - A. As per claims 1, 15 and 20, Katoh discloses a vehicle crash safety system (Fig. 3) which includes a pre-crash sensing system (20,31), vehicle dynamics detector (col. 7, lines 46-47), pre-crash countermeasure system (40), pre-crash controller (33,34), early crash sensing system (21,35), early crash countermeasure system (41) and a coordinated safety system controller (30) coupled to the various systems to coordinate a response to the pre-crash and early crash conditions.
 - B. As per claim 5, as above wherein the pre-crash sensing system may be an optical distance measuring sensor (col. 6, lines 17-19).
 - C. As per claim 7, as above wherein the vehicle dynamics detector may be a vehicle speed sensor (col. 7, lines 46-47).

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- D. As per claim 11, as above wherein the pre-crash countermeasure system may be at least an active safety system (i.e., automatic braking) (Fig. 3:40).
 - E. As per claims 12 and 17, as above wherein the early crash countermeasure system may be at least an airbag system (Fig. 3:41).
 - F. As per claims 13 and 18, as above wherein at least one crash sensor is provided (Fig. 3:21).
 - G. As per claim 16, as noted above the deployment of the pre-crash and early crash countermeasures are coordinated by the safety system controller (Fig. 3:30).
6. Claims 1, 5, 11-13, 15-18 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Pierce et al. (6,370,461).
- A. As per claims 1, 15 and 20, Pierce discloses a vehicle crash safety system (Fig. 1) which includes a pre-crash sensing system (22; col. 2, lines 53-56), vehicle dynamics detector (18) which provides an indication of vehicle braking, pre-crash countermeasure system (20; col. 3, lines 19-24), pre-crash controller (12), early crash sensing system (32), early crash countermeasure system (Fig. 2:52) and a coordinated safety system controller (12) coupled to the various systems to coordinate a response to the pre-crash and early crash conditions.
 - B. As per claim 5, as above wherein the pre-crash sensing system may be a radar (col. 2, line 66 to col. 3, line 3).
 - C. As per claim 11, as above wherein the pre-crash countermeasure system may be at least an active safety system (i.e., automatic steering) or suspension adjusting system (col. 2, lines 1-8).

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D. As per claims 12 and 17, as above wherein the early crash countermeasure system may be at least an airbag system (Fig.2:52).

E. As per claims 13 and 18, as above wherein at least one crash sensor is provided (Fig. 1:32).

F. As per claim 16, as noted above the deployment of the pre-crash and early crash countermeasures are coordinated by the safety system controller (Fig. 1:12).

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 2, 3, 8-10, 14 and 19 rejected under 35 U.S.C. 103(a) as being unpatentable over Katoh in view of Stopczynski (6,519,519).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35

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U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

A. As per claims 2 and 3, Katoh discloses using an optical distance measuring sensor (col. 6, lines 17-18) whereas the claimed invention specifically uses a vision system comprising a stereo pair of cameras. However, at the time of applicant's invention it was known in the vehicle crash safety art to utilize various optical measuring devices to detect objects in front of the vehicle and to use the information to control various countermeasure systems. For example, Stopczynski discloses a vehicle safety system which includes cameras (Fig. 1:14) to detect objects in front of the vehicle. One of ordinary skill in the art would have found it obvious to use cameras as the optical measuring devices disclosed by Katoh since the cameras would have

provided the information required to determine whether or not to deploy countermeasures.

B. As per claims 8 and 9, as above wherein Katoh discloses using vehicle speed as the vehicle dynamic parameter whereas claims 8 and 9 use yaw and steering wheel angle sensors. However, Stopczynski further teaches that other vehicle dynamic parameters may be sensed to provide an indication of the vehicle condition such that determinations can be made as to what countermeasures are required (see Fig. 1:18, Fig. 4A). One of ordinary skill in the art would have found it obvious to utilize various alternative vehicle dynamic parameters to provide an indication of the vehicle's operating condition before deploying the appropriate countermeasures.

C. As per claim 10, as above wherein Katoh discloses that the optical distance measuring device determines distance and relative velocity whereas the claimed invention further includes being able to determine the size of the object. However, as noted above relative to claims 2 and 3, Stopczynski discloses that the cameras are able to distinguish object identification parameters (Fig. 4A:162) and thus provide more detailed information about the object in front of the vehicle which can be utilized in determining the appropriate response by the system.

D. As per claims 14 and 19, as above wherein Katoh discloses at least providing a crash sensor as part of the early crash sensor system. The claimed invention differs in that a variety of additional sensors are provided. However, at the time of applicant's invention it was known in the vehicle crash safety art to utilize various sensors to provide information about the passenger such that the countermeasures (i.e., airbag,

seatbelts, etc.) are deployed in an optimum manner. For example, Stopczynski discloses a vehicle safety system which includes various vehicle sensors (Fig. 1:18) which provide information about the status of the passenger and various vehicle safety devices. One of ordinary skill in the art would have found it obvious to incorporate the additional sensor information into the system of Katoh because it would have produced a more robust safety system capable of optimally deploying the safety countermeasures.

10. Claims 2, 3 and 10 are further rejected under 35 U.S.C. 103(a) as being unpatentable over Katoh in view of Asayama (5,633,705).

A. As per claims 2, 3 and 10, Katoh discloses using an optical distance measuring sensor (col. 6, lines 17-18) whereas the claimed invention specifically uses a vision system comprising a stereo pair of cameras. However, at the time of applicant's invention it was known in the vehicle crash safety art to utilize various optical measuring devices to detect objects in front of the vehicle and to use the information to control various countermeasure systems. For example, Asayama discloses an obstacle detecting system which includes using stereoscopic cameras to detect objects in front of a vehicle (Fig. 1). One of ordinary skill in the art would have found it obvious to use the cameras as the optical measuring devices disclosed by Katoh, or in cooperation therewith, such that additional information regarding objects in front of the vehicle can be provided and used in controlling deployment of countermeasures.

11. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pierce in view of Shaw et al. (5,529,138).

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A. As per claims 8 and 9, as above wherein Pierce discloses using vehicle braking as well as signals provided from ABS and active cruise control systems as the vehicle dynamic parameter(s) (col. 3, lines 16-40) whereas claims 8 and 9 use yaw and steering wheel angle sensors. However, at the time of applicant's invention it was known in the vehicle safety system art to use other vehicle dynamic parameters to provide an indication of the vehicle condition such that determinations can be made as to what countermeasures are required. For example, Shaw discloses a collision avoidance system which uses various vehicle dynamic sensors (steering wheel angle, speed, yaw, etc.) to determine the operating status of the vehicle and to use such information in deploying countermeasures (see Figs. 4, 10-12). One of ordinary skill in the art would have found it obvious to utilize various vehicle dynamic parameters to provide an indication of the vehicle's operating condition before deploying the appropriate countermeasures.

C. As per claim 10, as above wherein Pierce discloses using a radar to determine distance and relative velocity whereas the claimed invention further includes being able to determine the size of the object. However, Shaw further teaches using multiple radar devices to also obtain the size of the object (Abs.) thus provide more detailed information about the object in front of the vehicle which can be utilized in determining the appropriate response by the system.

12. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katoh or Pierce in view of Stopczynski et al. (6,420,996) and Browne et al. (6,571,161).

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A. As per claims 4 and 6, Katoh and Pierce are applied as above. The claimed invention differs in that the pre-crash system may include a receiver or a transponder. However, at the time of applicant's invention it was known in the vehicle safety system art to provide transceivers in vehicles such that information can be exchanged between the vehicles prior to a collision (see as exemplary Stopczynski (Abs.) and Browne (Figs. 1,2; col. 1, lines 60-63)). One of ordinary skill in the art would have found it obvious to include such information exchange between vehicles because it would have provided additional information which could be used to mitigate a collision between the vehicles (see Stopczynski Abs. and col. 1, lines 24-31).

13. Claims 14 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katoh or Pierce in view of Adolph et al. (5,785,347), Swanberg et al. (5,707,078) and Steffens, Jr. et al. (5,413,378).

A. As per claims 14 and 19, Katoh and Pierce are applied as above wherein both patents disclose at least providing a crash sensor as part of the early crash sensor system. The claimed invention differs in that a variety of additional sensors are provided. However, at the time of applicant's invention it was known in the vehicle crash safety art to utilize various sensors to provide information about the passenger such that the countermeasures (i.e., airbag, seatbelts, etc.) are deployed in an optimum manner. For example, airbag and restraint control systems are replete with various sensors for detecting the orientation and weight of the passengers, status of the seatbelt, whether the seat is occupied by a childseat, seat position, etc. and to use that information in activating the safety devices (see as exemplary Adolph (Fig. 1),

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Swanberg (Fig. 3) and Steffens (Fig. 2)). One of ordinary skill in the art would have found it obvious to incorporate the additional sensor information into the systems of Katoh and Pierce because it would have produced a more robust safety system capable of optimally deploying the safety countermeasures.

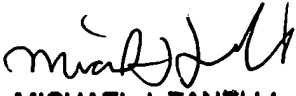
14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited documents are of general interest.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Zanelli whose telephone number is (703) 305-9756. The examiner can normally be reached on Monday-Thursday 5:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G. Black can be reached on (703) 305-8233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/mjz


MICHAEL J. ZANELLI
PRIMARY EXAMINER